

## **GeneSat-1 Day 6 Mission Operations Summary: T = Launch + 5 days, 5 hours**

C. Kitts, 12/21/06

Two contacts were executed today at ~ 0430 and 0600 PST. As with yesterday, the data retrieved during these contacts allowed the complete biological growth curves over the past 24 hours to be downloaded at an acceptable resolution level for biological analysis. In addition, the ops team downloaded full resolution bus health data for several recent orbits. The team estimates that we are ~ 10 days ahead of schedule in terms of our data download requirements for this phase of the mission.

Payload operation remains positive, with continued biological growth. Payload temperature continues to hold steady at the 34 degree C control set-point (the last collected value of median temperature was 34.1 deg C). Payload pressure is nominal with a temperature-driven fluctuation in the range of 14.7 to 14.9 psi. Bus health appears nominal with good temperatures (solar panel temp range: -5 to 20 deg C, internal bus temp on the exterior of the payload canister range: 17 to 23 deg C), no CPU resets, and nominal power (~ 8V). Initial analysis of complete orbit data shows that component temperatures, voltages, are currents are all nominal.

Contact summary to date: 19 successful contacts over 6 days. 302 successfully executed commands. 1.07 Mbits of mission data downloaded.

Communications remain functional, and today there was a significant improvement in the command channel success rate (54% vs the ~30% ave over the previous 5 days). We attribute this primarily to the increasing accuracy of the orbit estimate, and has been mentioned before, we hope to see this number continue to rise as the estimate continues to improve. We note that nearly all commanding has been done in the very early morning hours, so over time we are also interested in assessing how time-varying (and most likely directional) 2.4 GHz noise affects the command link (e.g. how 2.4 GHz wireless noise increases during normal working hours). The beacon channel remains strong throughout all contacts with successful packet decoding.

Ground segment operation is nominal. There were no station resource conflicts with the past day's dual use between GeneSat and MEPSE, and we do not anticipate any over the next day or two (the duration of the battery-operated MEPSE lifetime).

Amateur radio operators continue to track the satellite, with more than 7100 externally acquired and submitted packets to date. A competition is currently being run with a focus of collecting the most beacon packet data during the Experiment Phase 96 hour biological growth period.

We note that the dashboard website has received 8,000+ hits in the past 21 hours.

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Day 4 Mission Operations Team: Mike Rasay – command channel operator, Ignacio Mas – telemetry analyst, Phelps Williams– beacon channel operator and command channel operator, Chris Kitts –telemetry analyst and beacon operator, Paul Mahacek – dish tracking and beacon channel operator, Giovanni Minelli, dish tracking and beacon channel operator